In the Claims

What is claimed is:

1. (Currently Amended) A system for preventing ice formation on a surface of a solid object, comprising:

a first electrode disposed on the surface;

a second electrode proximate to the first electrode;

an interelectrode space separating the first and second electrodes; and

a ~~an AC~~ power source connected to the first and second electrodes, the power source capable of providing a ~~an AC~~ voltage with sufficient power to prevent freezing of a liquid water layer in the interelectrode space.

2. (Currently Amended) A system as in claim ~~1~~43, wherein the power source is capable of providing an AC voltage having a frequency in a range of from 15 Hz to 1 kHz.

3. (Currently Amended) A system as in claim ~~1~~43, wherein the power source is capable of providing an AC voltage having a frequency in a range greater than 1 kHz.

4. (Currently Amended) A system as in claim ~~1~~43, wherein the power source is capable of providing an AC voltage in a range of from 0.1 to 100 volts.

5. (Currently Amended) A system as in claim ~~4~~ 43, wherein the power source is capable of providing an AC voltage in a range of from 5 to 25 volts.

6. (Currently Amended) A system as in claim ~~1~~43, wherein the power source is capable of providing a current density in a liquid water layer in the interelectrode space in a range of from 1 to 100 mA/cm^2.

7. (Currently Amended) A system as in claim ~~1~~43, wherein the power source is capable of providing a current density greater than 10 mA/cm^2.

8. (Currently Amended) A system as in claim ~~1~~43, wherein the interelectrode space has a thickness not exceeding 3 mm.

9. (Currently Amended) A system as in claim ~~1~~43, wherein the interelectrode space has a thickness not exceeding 500 μm.

10. (Currently Amended) A system as in claim ~~1~~43, wherein the interelectrode space has a thickness in a range of from 5 nm to 100 μm.

11. (Currently Amended) A system as in claim ~~1~~43, wherein the first electrode comprises a material selected from the group consisting of aluminum, copper, titanium, platinum, nickel, gold, mercury, palladium, carbon, SnO_2, $InSnO_2$, RuO_2 and IrO_2.

12. (Currently Amended) A system as in claim ~~1~~43, wherein the second electrode comprises a material selected from the group consisting of aluminum, copper, titanium, platinum, nickel, gold, mercury, palladium, carbon, SnO_2, $InSnO_2$, RuO_2 and IrO_2.

13. (Currently Amended) A system as in claim ~~1~~43, wherein the surface is electrically nonconductive, the first electrode is disposed on a first portion of the surface, ~~a~~the second electrode is disposed on a second portion of the surface, and a third portion of the surface is located between the first and second electrodes ~~of~~ of the object.

14. (Currently Amended) A system as in claim 13, wherein the first electrode and the second electrode are interdigitated.

IA X 15. (Currently Amended) A system as in claim ~~1~~43, wherein the second electrode covers the first electrode, and the second electrode is exposed to water and is porous to water.

IA 16. (Original) A system as in claim 15, wherein the second electrode is a mesh comprising metal mesh fibers.

IA 17. (Original) A system as in claim 16, wherein the metal mesh fibers have a thickness in a range of from 1 to 100 μm.

IA 18. (Original) A system as in claim 15, further comprising a porous insulator layer disposed between the first electrode and the second electrode, the porous insulator layer forming the interelectrode space and being porous to water.

IA 19. (Original) A system as in claim 18, wherein the porous insulator layer has a total volume and a pore space, and the pore space occupies between 0 and 100 percent of the total volume.

IA 20. (Original) A system as in claim 19, wherein the pore space occupies in a range of from 50 to 70 percent of the total volume.

IA 21. (Original) A system as in claim 18, wherein the first electrode comprises aluminum and the porous insulator layer comprises aluminum oxide.

IA 22. (Original) A system as in claim 21, wherein the porous insulator layer comprises anodized aluminum.

23. (Original) A system as in claim 1, wherein the surface of the solid object includes the first electrode.

24. (Cancelled)

Non-elected 25. (Currently Amended) A system as in claim ~~24~~44, wherein the power source is capable of providing a DC voltage in a range of from 0.1 to 100 volts.

Non-elected 26. (Currently Amended) A system as in claim ~~2444~~, wherein the power source is capable of providing a current density in a liquid water layer in the interelectrode space in a range of from 1 to 100 mA/cm^2.

Non-elected 27. (Currently Amended) A system as in claim ~~2444~~, wherein the interelectrode space has a thickness not exceeding 3 mm.

28-42 (Cancelled)

43. (New) A system as in claim 1, wherein the power source comprises an AC power source capable of providing an AC voltage.

Non-elected 44. (New) A system of claim 1, wherein the power source comprises a DC power source capable of providing a DC voltage.